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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/038,073	01/04/2002	Jennifer K. Lanier	C0015	7323
7590	12/17/2003			
Michael E. Carroll, Jr. P.O. Box 489 Hickory, NC 28603-0489				
EXAMINER				
ARTMAN, THOMAS R				
ART UNIT		PAPER NUMBER		
2882				

DATE MAILED: 12/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/038,073

Applicant(s)

LANIER ET AL

Examiner

Thomas R Artman

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 June 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 6-80 is/are pending in the application.
- 4a) Of the above claim(s) 45-68 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-8, 15, 21-23, 26-34, 36-44 and 69-80 is/are rejected.
- 7) ☒ Claim(s) 9-14, 16-20, 24, 25, 35 and 36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Claims 45-68 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected method of manufacture, there being no allowable generic or linking claim. The election was made with traverse in Paper No. 5.

In response to the applicant's request to examine claims 4 and 5 with the elected invention, the examiner reminds the applicant that claims 4 and 5 were cancelled in a preliminary amendment in Paper No. 3.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-8, 26, 37 and 69-80 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 6-8, 26, 37 and 69 are unclear because it is not certain whether the claims are directed to a fiber optic cable as set forth in the preamble or an interconnect cable assembly. It is noted that the cable assembly characteristics claimed do not further limit the limitations directed to the fiber optic cable.

Claims 70-80 are rejected under this section by virtue of their dependency.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 6-8, 15, 22, and 69-71 are rejected under 35 U.S.C. 102(b) as being anticipated by Anderson (US 4,515,435).

Regarding claims 1-3, 6-8 and 69-71, Anderson discloses an optical fiber cable (Fig.1), including:

- 1) a cable core (area inside layer 16) with at least one optical fiber 13, and
- 2) a cable jacket 16 that generally surrounds at least one optical fiber and has an average shrinkage of about 0.1% to about 5%, which overlaps with the claimed range of having an average shrinkage of about 1% or less (col.6, line 60, to col.7, line 4).

Further regarding claims 2 and 69, Anderson discloses a separation layer 10 generally surrounding the at least one optical fiber.

Further regarding claims 6-8 and 69, the claims are directed to the intended use of the claimed fiber optic cable in an interconnect cable assembly, where the assembly has specific properties. These properties do not further limit the fiber optic cable and, therefore, do not distinguish the fiber optic cable over Anderson. Therefore, the claims stand rejected for the reasons stated above.

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With respect to claim 15, Anderson's jacket is made from a thermoplastic elastomer (polyvinyl chloride, col.6, lines 32-35).

With respect to claim 22, Anderson's jacket material, polyvinyl chloride, has a melting onset temperature greater than 110 Centigrade.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson.

Anderson does not disclose a jacket having a non-circular cross section. However, it is known in the art that some cables, including some ribbon cables, do not have non-circular cross sections.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make a jacket non-circular depending upon what sort of optical fiber arrangement is being cabled.

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Claims 23, 26-31, 32-34, 37-42, 43, 44, 69, 72-77 and 78-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lai (US 5,237,635) and in view of BASF (Wire and Cable Properties).

Regarding claims 23, 27-30, 34 and 38-41, Lai discloses a fiber optic cable, including:

- 1) a fiber optic cable core having at least one optical fiber 7 and a separation layer 2 that generally surrounds the at least one optical fiber, and
- 2) a cable jacket 5 generally surrounding the separation layer as claimed in claims 23, 34 and 69.

Lai does not disclose the specific material properties of the jacket material. However, it is stated in col.3, lines 25-30, that a suitable jacket material is a thermoplastic polyurethane.

BASF demonstrates the material properties of some commercially available thermoplastic polyurethanes with material properties that make the material useful for fiber optic cable jackets.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the thermoplastic polyurethane cable jackets of Lai such that the cable jacket would have the following advantageous properties taught by BASF:

Re: claims 23, 38 and 78: an ultimate elongation of about 350% to about 700%,

Re: claims 27-29, 34, 39, 40 and 72: a flexural modulus of about 7,500 psi or less,

Re: claims 30, 41 and 73: a Shore A hardness of about 95 or less, and

Re: claims 33, 44 and 79: a melting onset temperature of 110 Centigrade or higher,

since these properties make thermoplastic polyurethanes advantageous for use as fiber optic cable jackets as touted by the manufacturer.

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Regarding claims 26 and 37 and further regarding claim 69, the claims are directed to the intended use of the claimed fiber optic cable in an interconnect cable assembly, where the assembly has specific properties. These properties do not further limit the fiber optic cable and, therefore, do not distinguish the fiber optic cable over Lai. Therefore, the claims stand rejected for the reasons stated above.

Regarding claims 32, 43, 74-76 and 80, as stated above, Lai discloses a thermoplastic polyurethane as a suitable cable jacket material (col.3, lines 25-30).

Regarding claims 31, 42 and 77, Lai does not disclose a partially cross-linked chlorinated polyolefin for the jacket material.

Lai does teach several examples of suitable jacket materials, including a fluorinated polyolefin (col.3, lines 25-30). Both polyolefin types are generally referred to as halogenated polyolefins, which are known in the art to have similar, advantageous properties, such as low coefficients of friction and being flame retardant. Therefore, these polyolefins would be considered functionally equivalent to those of ordinary skill in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Lai to use chlorinated polyolefins as is known in the art for a jacket material in lieu of fluorinated polyolefins in view of being recognized for use as fiber optic cable jacket materials. Furthermore, it is within the scope of the skilled artisan to select one of the materials over the other based upon availability.

Allowable Subject Matter

Claims 9-14, 16-20, 24, 25, 35 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record neither teaches nor reasonably suggests the additional cable jacket property of having a flexural modulus of 10,000 psi or less, as claimed in claims 9-11.

The prior art of record neither teaches nor reasonably suggests the additional cable jacket property of having a Shore A hardness of about 95 or less, as claimed in claims 12-14.

The prior art of record neither teaches nor reasonably suggests the cable jacket being made of a thermoplastic polyurethane as claimed in claims 16 and 17.

The prior art of record neither teaches nor reasonably suggests the cable jacket being made of a partially cross-linked chlorinated polyolefin.

The prior art of record neither teaches nor reasonably suggests the additional cable jacket property of having an ultimate elongation of about 350% to about 700% as claimed in claims 19 and 20.

The prior art of record neither teaches nor reasonably suggests the additional cable jacket property of having an average shrinkage of 2% or less as claimed in claims 24, 25, 35 and 36.

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Anderson, Dixon (US 6,324,324) and Kempf (US 4,078,853) disclose shrinkages within the claimed range, but none of them specify other properties of their jacket materials, and none of the materials are thermoplastic polyurethanes or chlorinated polyolefins.

Lai teaches the general equivalence of a number of jacket materials for the same general characteristics without any specific details regarding the material properties.

Therefore, there isn't any suggestion in the art that a material with the claimed shrinkage will also have the claimed flexural moduli, hardnesses or ultimate elongations.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nave (US 5,748,823) teaches a cable jacket made of chlorinated plastics and polyolefins with a flexural modulus outside of the claimed range. McCallum, III (US 5,408,561) teaches a cable (not just the jacket) with a flexural modulus under 7,500 psi and a cable jacket elongation greater than 150%. Anderson (US 4,552,432) teaches advantages of using polyurethanes as jacket materials.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas R Artman whose telephone number is (703) 305-0203. The examiner can normally be reached on 9am - 6:30pm Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (703) 308-4858. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Thomas R. Artman
Patent Examiner
December 11, 2003



EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER